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Iron-based amorphous alloys are desirable for many industrial applications due to their dual capacity to resist corrosion and wear. These alloys may also contain a significant amount of boron which makes them candidates for criticality control, for example, in high-level nuclear waste disposition applications. The Fe-based amorphous alloys can be produced in powder form and then deposited using a HVOF thermal spray process on any surface that needs to be protected. For the current testing coupons of 316L stainless steels were coated with the amorphous alloy SAM2X5 and then tested for corrosion resistance in the salt-fog chamber and in other industrial environments. Prototype cylinders were also prepared and environmentally tested. One cylinder was 30-inch diameter, 88-inch long, and 3/8-inch thick. The coating thickness was 0.015 to 0.019-inch thick. The cylinder was in good condition after the test. Along the body of the cylinder only two pinpoint spot sized signs of rust were seen. Test results will be compared with the behavior of witness materials under the same tested conditions.

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